Bigelow (Henry J.) Dr. J. J. Bigelow

ON THE

EMPLOYMENT OF A NEW AGENT

IN THE TREATMENT OF

STRICTURES OF THE URETHRA.

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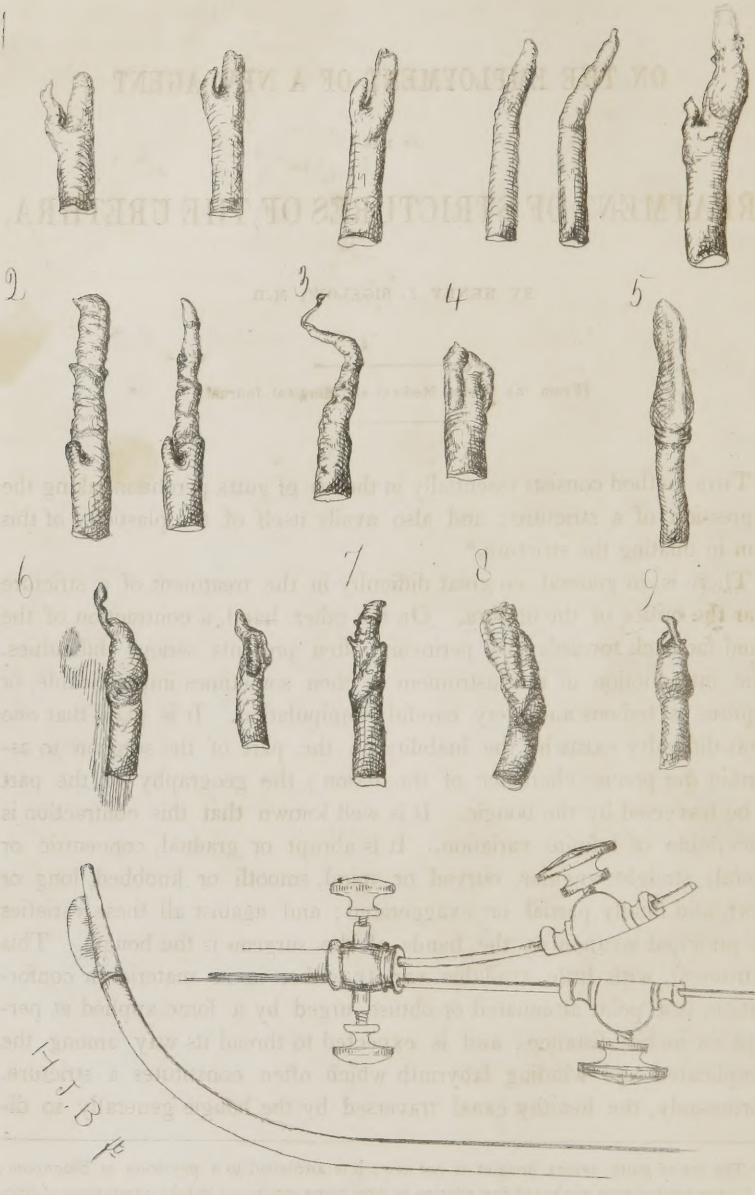
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TREATMENT OF STRICTURES OF THE URETHRA.

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[From the Boston Medical and Surgical Journal.]

This method consists essentially in the use of gutta percha in taking the impression of a stricture; and also avails itself of the plasticity of this gum in dilating the stricture.*

There is, in general, no great difficulty in the treatment of a stricture near the orifice of the urethra. On the other hand, a contraction of the canal far back towards the perineum often presents serious difficulties. The introduction of an instrument is then sometimes impracticable, or requires a tedious and very careful manipulation. It is plain that one great difficulty exists in the inability on the part of the surgeon to ascertain the precise character of the lesion; the geography of the part to be traversed by the bougie. It is well known that this contraction is susceptible of infinite variation. It is abrupt or gradual, concentric or lateral, straight, angular, curved or spiral, smooth or knobbed, long or short, and finally partial or exaggerated; and against all these varieties the principal weapon in the hands of the surgeon is the bougie. This instrument, with little available variety, either in its material or conformation, is a point attenuated or obtuse, urged by a force applied at perhaps six inches distance; and is expected to thread its way among the complicated and winding labyrinth which often constitutes a stricture. Fortunately, the healthy canal traversed by the bougie generally so di-

* The use of gutta percha bougies is not new; it is attributed to a physician at Singapore; but I have neither seen nor heard any allusion to their being employed to take impressions of strictures, which, so far as I can judge, constitutes their chief if not their only value. I have received within a day or two, through the politeness of Mr. Burnett, apothecary in Tremont Row, a sample of bougies with which he has been furnished by the Gutta Percha Company in New York, excellent in appearance, but which I have not had an opportunity of testing.

rects it, that when the contraction is not great, the point enters its orifice after more or less manipulation. Yet it will be conceded that this manipulation, however delicate and skilful, is often, and of necessity, only a series of tentative thrusts or offers, made in the dark, in the hope of ultimately discovering and traversing some interval or interstice should such exist.

Other circumstances, such as the density and character of the opposing tissue, and the necessity of employing or of avoiding protracted pressure, complicate the problem.

The common method, it is true, is often quite effectual and satisfactory; especially in the ordinary run of cases of simple or partial contraction. Yet there is something gross in it. It is wanting in the nicer modifications of art which should characterize surgical manipulation, when they do not interfere with its simplicity. Nor are the results of this process always satisfactory; especially when the case is difficult, or the operator inexpert. It will soon be shown that false passage is very common in connection with old stricture; simply because the propelled instrument, finding no natural canal, has made one for itself. Or, as not unfrequently occurs, when the urine dribbles away, no canal can be detected and no instrument of dilatation passed.

These difficulties are not new. Different methods have been devised to bring the part to be operated upon more directly in contact with the senses of the operator; such as a lamp to illuminate the stricture, and a tube to see it. Ducamp insisted upon the great advantage of impressions in wax, as conveying an idea of the conformation of a stricture, and contrived hollow tubes, containing eccentric bougies sliding out like a telescope at one side of the distorted canal.

Whoever has tried this wax has probably found, that however good the impression received in the interior may be, it is lost, either when the material is extricated from the stricture or subsequently from the canal. It is of questionable utility in this point of view. Besides, the wax is soft and liable to break; and lastly, when moulded to the canal, it is itself of no use in dilating it, and another instrument of corresponding outline must be arranged for this purpose.

The advantages of gutta percha are, first, that it is probably the only material in the world capable of receiving an acute impression at a temperature quite comfortable to the skin, and at the same time of retaining it entirely, at about the actual temperature of the body; then becoming hard and resisting, besides being exceedingly tough, even in attenuated filaments. It follows, that upon being withdrawn from the urethra, it pre-

sents a perfect impression of the most minute inequalities of the callus against which it has impinged.

In the second place, it may be used when thus moulded as a dilator of the stricture; and it can be made to enter with unerring certainty any of its orifices.

A few words will suffice to describe the method I have adopted in employing these bougies. A medium size answers a good purpose, unless there be strictures anterior to the one to be treated, in which case a small calibre is sometimes requisite. Let the bougie be oiled and the tip passed to and fro rapidly in the edge of the flame of a candle, until it is so warm that the nail will indent it; the mass will remain plastic after the surface has ceased to be hot, and may be rapidly passed down to the stricture, being very smooth and pliable. If it be pressed against the stricture for a minute with a force equivalent to an ounce or two of weight, and then left to cool during the succeeding three or four minutes, it will present, when slowly and carefully disengaged from the stricture, a firm and unyielding impression of the most minute inequality and indentations of the callous surface. The tip may be cut off and preserved, furnishing, with others, a complete history of the conformation of the stricture under treatment.

If water be employed to heat the gum, it will be found that the steam from the surface will soften the rod for the length of an inch or more; rendering it liable to curl up against the stricture, as small elastic bougies are apt to do. The tip alone should be softened. On the other hand, care should be taken not to burn the gum; its texture and ability to harden are thus destroyed, and a piece may be left in the stricture. Such a case occurred to me. A plug was thus left in a small stricture, causing retention of urine during eighteen hours; when the orifice having become dilated, the plug was forced out by the urine; which then flowed more freely than for many months before.

Pure gutta percha softens most readily and cools with least elasticity and shrinking. It is therefore far better for impressions than when adulterated, as is common, with caoutchouc. But when pure, a little oiling and use soon raises a fur upon its surface; so that it is probable that some compound will answer better for mere bougies.

I have hitherto made these rods from pure gum, of the thickness of sole leather, cut into square strips, plunged into boiling water, and rolled between two boards, care being taken to prevent twisting.

When the bougie is imbedded in the stricture, let its head, or external end, be warmed and flattened in a vertical or transverse direction with

reference to the pubis, and it will indicate, when withdrawn, the position of the inequalities in regard to the periphery of the canal.

Suppose, now, that the impression, as is frequently the case, is forked. Examination of the extremities often indicates which is the true passage and which the false; or if not, the larger is generally the true passage. Let the false extremity be carefully shaved off and the bougie returned into the urethra, its flattened head maintaining its relative position to the pubis. It forms a conical bougie of the best description, exactly adapted to the form of the true passage, which it inevitably enters. Impressions also record and especially direct the progress of a cutting instrument, as seen in the annexed sketches.

The general pathology of stricture is not here discussed; but it will be quite obvious that there are cases of irritable and inflammatory stricture in which this method of dilatation, as well as all other active mechanical treatment, would be inappropriate. Nor are the relative merits of dilatation, incision and cauterization here considered. Each is occasionally a valuable resource; the progress of all is incalculably aided by the knowledge derived from impressions; while the first, by far the most valuable mode of treatment, is considerably accelerated by the actual employment of the gutta percha.

The annexed sketches will give an idea of the character of the impressions. They are a few, selected from a considerable number, to illustrate several points.

The first line of the annexed print presents impressions with false passages, taken in the course of the treatment of the first case detailed below. The three first figures represent different impressions taken early in the treatment. The fourth and fifth represent the bougies used as dilators after the impression of the false passage was removed; and the last figure shows the impression when the canal was easily pervious to a moderate-sized bougie.

The figures numbered 2 are different impressions of the same stricture at different periods of treatment.

3. An old stricture, nearly impervious, from a patient who died of inflammation of the membranous portion of the urethra.

4, 5. Impressions of incisions. These incisions were made with Ratier's instrument, sketched below, in this connection, and which is by far the best of a number I have employed. The blade slides back obliquely into the canula.

6. An excellent impression of an old stricture. Two perfectly similar impressions were taken upon succeeding days; indicating that no

doubt could exist of the character of its outline. The stricture was incised exactly at the point calculated, the parallel lines indicating where the impression of the two incisions, seen in the small figure, corresponds with the original impression.

At 8 is seen the last impression of these and subsequent incisions; three days after which, the canal was entirely pervious. These are from the second case detailed below.

7, 9, are given as good impressions of curious strictures.

The following are two cases of bad strictures which had resisted previous treatment. I believe the success attending their ultimate treatment to be due to the assistance derived from the gutta percha. They are here detailed as the first cases subjected to this treatment, and they were examined by various professional gentlemen from different parts of the country, who happened to visit the Hospital during the summer of 1848, and an account of them was read to the Boston Society for Medical Improvement soon after their occurrence.

Obstinate Traumatic Stricture, with Fistula behind Scrotum. ——— ———, æt. 38. Patient has had gonorrhœa many times—last time four years ago. In 1832, after exposure to cold and wet, great difficulty in micturition. Again in 1837 had a similar attack.

June 1, 1848.—Eighteen months ago, fell astride of the rail of a ship; was made insensible, and afterwards had much difficulty in urinating, and passed bloody urine. Last July, after much difficulty in micturition, a swelling formed in perineum, just behind scrotum, opened externally, and through the opening pus and urine escaped together. Urine has flowed more or less in this way since.

Now, penis and scrotum swollen; the scrotum quite dense, firm, enlarged and thickened, especially at posterior part.

Just behind scrotum is a small red eminence which marks the entrance of a fistula, from which urine drops at every emission.

The smallest sized catheter passes through a stricture just before the scrotum, but is arrested about two and a half inches farther by a stricture into which it passes about half an inch.

Has had much fruitless treatment with instruments before entering the house, and is sure none have ever entered bladder until about a month ago, when a small steel wire was passed twice or three times by the patient himself, and which was followed by much constitutional irritation.

Patient states that he is unable now to discover this canal, to which chance directed the instrument. In the course of several explorations, I succeeded in passing the wire once; but the mass was dense and carti-

laginous to the feel, and it was evident that nothing could be gained except by consecutive dilatation ; which it was impossible to adopt, on account of the uncertainty of entering the stricture, without protracted and irritating manipulation. This was a stricture of the worst class, occupying a long and dense cicatrix, and complicated both with a false passage at its entrance, which was liable to engage the bougie, and with an old fistulous sinus.

June 3d.—An impression of the stricture was taken with engravers' wax ; but this being unsatisfactory in its indications, the gutta percha was tried the next day, and yielded, from the orifice of the stricture, one of the three first impressions of which a sketch is given. In the course of the week, as the patient was able to bear the treatment, the false spur was removed from the bougie, as seen in the sketch, and the rod, guided by the flattened head, was passed into the true canal.

On the 16th, by the same guide, incisions were made with Ratier's instrument ; and on the 23d, three weeks from the beginning of treatment, a small silver catheter was easily passed into the bladder and left there.

July 6th, the patient was able to retain a medium-sized flexible bougie for an hour or two without pain.

15th.—"Now introduces, and wears with ease, a No. 11 flexible catheter." The last impression is seen in the plate.

At this time he suffered from a severe constitutional attack. Pain in the scrotum, with swelling—general heat—pulse 100—tongue furred. On the second day, anorexia and nausea—pulse 116. Not relieved by an emetic. On the third day, pulse 160—much nausea. Being unable to discover other local difficulty, after careful exploration of the viscera and functions, and the patient looking badly, I determined to divide the scrotum on its posterior aspect ; which was done. The patient being etherized and placed as for lithotomy, and with the valuable assistance of Dr. Townsend, a grooved staff was passed into the bladder, and an incision about three and a half or four inches long was made in the perineum, through the thickened callus, until, at the depth of nearly three inches, the sound was exposed and the urethra divided to some extent, and nearly as far as the bladder, for the purpose of dividing, if possible, the internal orifice of the old fistula. The source of the constitutional trouble appeared in a small collection of pus in the heart of the callus and quite near the urethra. During the three succeeding days the pulse was successively 128, 120, 90, with returning appetite and corresponding improvement in appearance.

From this time the patient steadily improved. Ointments, fomentations and poultices, compression and bandages, were applied as indicated, the patient soon taking into his own hands the treatment by bougies, of which he wore or passed with ease the larger sizes, until in November the urine flowed in a good stream, with a drop or two from the perineum once in two or three days. The patient left the Hospital, at the end of the year, with a bougie to gauge occasionally the calibre of his urethra, and much gratified with his improved condition.

Stricture of the Cavernous Portion, with Fistula. —— ——, æt. 72. "Reports that after exposure to cold eleven years ago, stricture was first troublesome. A year ago, after another severe exposure, stricture again came on, and was treated with bougies. Five months ago suffered from retention of urine, and at this time a fistula was formed below the stricture, through which most of the urine has since escaped."

Sept. 20, 1848.—"Now a fistula exists at the right side of the scrotum, of considerable size. Urine passes chiefly through this passage."

21st.—"A gutta percha bougie was passed, which retained, on being withdrawn, the perfect form of the stricture."

This impression, numbered 6 in the plate, was twice taken at the interval of two days, leaving no doubt of its accuracy; and exhibits a minute prolongation like the head of a snake, indicating an almost complete obliteration of the canal.

From this period till the end of the month the stricture was several times incised, and a number of impressions taken, the first of which, with two incisions, is represented at No. 6 *bis*; while the last is given at No. 8, showing how large a calibre the canal had then attained. The stream of urine was now tolerably free, while the dribbling of the fistula had decreased; and the canal being somewhat sore at the incised portion, I forebore at this time to pass an instrument into the bladder. A few days after, my friend Dr. Warren, Jr., who at this time succeeded me in the charge of the ward, informed me that an instrument had readily passed the former strictures into the bladder.

In the course of three weeks the patient left the hospital with a canal of good diameter, and provided with a flexible bougie for his own use. The fistula was not entirely healed, yet no urine passed by it.

It is well known that old fistulæ in the urethra rarely heal. On the other hand, the stricture which accompanies and produces them is capable of causing infinite mischief. A case of this sort occurred to me while the above cases were under treatment.

A patient, about 45 years of age, had a stricture of a number of years standing. Exposure aggravated it, with retention. The urethra burst behind the scrotum, and when I saw him on the fifth day, the penis and scrotum were tumefied and gangrenous. A little œdema only existed about and above Poupart's ligament; yet I deemed it advisable to incise, besides the former regions, the integuments of the abdomen on both sides. Much urine escaped from the scrotum and cellular tissue of the penis, while that of the abdomen appeared healthy in the course of an oblique incision in each iliac region three or four inches in length, and as deep as the tendon of the external oblique. Yet a few days sufficed to show that here, also, the cellular membrane beneath the superficial fascia was infiltrated with urine, for an apron of slough was soon formed between skin and muscle, as high as the navel and laterally backward, discharging profusely pus with urine, and the patient succumbed on the seventeenth day.

Both the first were cases of obstinate stricture of long duration. Both had undergone protracted treatment without success; the former in two hospitals; and the voluntary attestations of both, inasmuch as patients with old strictures usually get to be in some measure connoisseurs of local treatment, may be considered as having some weight in favor of the facility and efficacy of the treatment by gutta percha.